

ABSTRACT

The present invention provides a hexagonal mesoporous inorganic material comprising an organic functional group capable of forming a bond in response to an external stimulus provided at the entrances of the pores thereof. The present invention also provides a hexagonal mesoporous inorganic material comprising a functional substance filled in the pores thereof and an organic functional group provided at the entrances of the pores, wherein a bond is formed in the functional group to close the entrances. These hexagonal mesoporous inorganic materials allow a substance incorporated therein to be controllably released. The present invention further provides a method of producing the mesoporous inorganic material, and a method using the mesoporous inorganic material to incorporate and/or remove a chemical substance, or to control the release of a functional substance incorporated therein.